

L 6474-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h)
ACCESSION NR: AP5019811

IJP(c) JD/JG/DM
UR/0089/65/019/001/0042/0043
539.172.4:539.17.02

AUTHOR: Stavisskiy, Yu. Ya.; Shapar', A. V.; Krasnokutskiy, R. N.

TITLE: Cross section for the capture of fast neutrons by rhenium

SOURCE: Atomnaya energiya, v. 19, no. 1, 1965, 42-43

TOPIC TAGS: neutron cross section, neutron capture, fast neutron, rhenium, Gamma radiation, thermal neutron/ BR 5

ABSTRACT: The energy dependence of the cross section for radiative capture of fast neutrons by rhenium of natural isotopic composition (thickness 6×10^{22} atoms/cm²) was measured by recording the prompt capture gammas. The neutron source was the reaction $T(p, n)He^3$ in the target of a Van de Graaff accelerator. The capture gammas were detected by a scintillation counter with CaF₂ crystal. A circular measurement geometry was used. The ratio of background to effect did not exceed 30%. The absolute values were obtained by measuring the capture cross sections of both rhenium isotopes by the activation method at a neutron energy 600 kev. The procedure used in this work differed from the usual activation methods in that the irradiation with thermal and fast neutrons was carried out under essentially different conditions. The irradiation with thermal neutrons was carried

Card 1/2

L 6474-66 EWT(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/JG/DM
 UR/0089/65/019/001/0042/0043
 539.172.4:539.17.02
 ACCESSION NR: AP5019811

AUTHOR: Stavisskiy, Yu. Ya.; Shapar', A. V.; Krasnokutskiy, R. N.
 TITLE: Cross section for the capture of fast neutrons by rhenium
 SOURCE: Atomnaya energiya, v. 19, no. 1, 1965, 42-43

TOPIC TAGS: neutron cross section, neutron capture, fast neutron, rhenium, Gamma radiation, thermal neutron/ BR 5

ABSTRACT: The energy dependence of the cross section for radiative capture of fast neutrons by rhenium of natural isotopic composition (thickness 6×10^{22} atoms/cm²) was measured by recording the prompt capture gammas. The neutron source was the reaction T(p, n)He³ in the target of a Van de Graaff accelerator. The capture gammas were detected by a scintillation counter with CaF₂ crystal. A circular measurement geometry was used. The ratio of background to effect did not exceed 30%. The absolute values were obtained by measuring the capture cross sections of both rhenium isotopes by the activation method at a neutron energy 600 kev. The procedure used in this work differed from the usual activation methods in that the irradiation with thermal and fast neutrons was carried out under essentially different conditions. The irradiation with thermal neutrons was carried

Card 1/2

L 1926-66 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(m)-2 LJP(c) JD/WH/JG/DM

ACCESSION NR: AP5023774

UR/0089/65/019/003/0292/0294
539.125.523.5

AUTHOR: Stavisskiy, Yu. Ya.; Sherman, L. Ye.

TITLE: Propagation of resonance-energy neutrons in uranium

SOURCE: Atomnaya energiya, v. 19, no. 3, 1965, 292-294

TOPIC TAGS: neutron spectrum, neutron capture, uranium, fission cross section, capture cross section

ABSTRACT: The propagation of neutrons decelerated in large thicknesses of copper through depleted metallic uranium was studied. During the experiment, the capture cross sections of several elements (Mn^{55} , In^{115} , I^{127} , Au^{197} , U^{238} , U^{235}) were determined relative to the fission cross section of Pu^{239} from the neutron spectrum formed. The measurements were made in a cavity of the uranium lump and by transmission in a spherical geometry. The integral characteristics of the established spectrum are found to be equal to

$$\frac{\sigma_f(U^{238})}{\sigma_f(U^{235})} = 376 \pm 25 \quad \text{and} \quad \frac{\sigma_f(U^{238})}{\sigma_c(Au^{197})} = 2.74 \pm 0.12.$$

1/2

L 1926-66

ACCESSION NR: AP5023774

The lower value of $\frac{\sigma_f(U^{238})}{\sigma_c(Au^{197})}$ indicates that the neutron spectrum formed in this case is appreciably softer. In general, the spectrum established in metallic uranium is found to be dependent (at least for the thickness employed in practice) on the neutron spectrum of the source. The criterion for the establishment of an asymptotic spectrum with definite characteristics (constancy of the cross section ratio $\frac{\sigma_f(U^{238})}{\sigma_f(U^{235})}$) cannot be considered final, since this ratio is sensitive mainly to the hard region of the spectrum. "In conclusion, the authors thank M. N. Nikolayev for useful comments and the staff attending the BR-1 reactor for assistance." Orig. art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 21Jan65

ENCL: 00

SUB CODE: NP

NO REF SOV: 003

OTHER: 002

2/2

L 14693-66 EWI(m)/EPF(n)-2/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/JG/DM
ACC NR: AP6008253 SOURCE CODE: UR/0089/65/019/005/0457/0458
AUTHOR: Kononov, V. N.; Stavisskiy, Yu. Ya. 57
ORG: none 19.44.55
TITLE: Cross sections for fast neutron radiative capture in rhenium and
tantalum 21,55 55,27
SOURCE: Atomnaya energiya, v. 19, no. 5, 1965, 457-458
TOPIC TAGS: neutron cross section, neutron capture, rhenium, tantalum
ABSTRACT: Radiative-capture cross sections of neutrons in Re and Ta were
measured for energies from 30 to 170 kev, using a time-of-flight method.
Results are presented and compared with those from previous experiments, and
their accuracy is discussed. [NA]
SUB CODE: 20 / SUBM DATE: 06May65 / ORIG REF: 002 / OTH REF: 003

BVK
Card 1/1

UDC: 539.17.02: 539.172.4
2

KONONOV, V.N.; STAVISSKIY, Yu.Ya.

Cross section of the radiation capture of fast neutrons in
rhenium and tantalum. Atom. energ. 19 no.5:457-458 N '65.
(MIRA 18:12)

L 20717-66

ACC NR: AP6007820

SOURCE CODE: UR/0120/66/000/001/0115/0117

AUTHOR: Kononov, V. N.; Stavisskiy, Yu. Ya.

ORG: none

TITLE: Producing starting pulses in transit-time nanosecond hardware

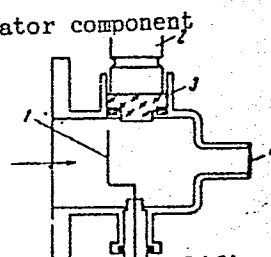
SOURCE: Pribery i tekhnika eksperimenta, no. 1, 1966, 115-117

TOPIC TAGS: particle accelerator, ion accelerator, particle accelerator component

ABSTRACT: A start-pulse-producing device is described which comprises (see figure) tungsten grid 1, photomultiplier 2, plastic scintillator 3, and target 4 (see also A. N. James et al., Nucl. Instr. and Methods, 1961, 10, 68). When the beam diameter near the target is about 10 mm, the ion-current loss in the grid amounts to a few percent.

This device has been used since 1960. Another start-pulse-producing device (J. Hahn, Trans. IEEE, 1963, NS-10, 149) uses direct amplification of target current pulses by a transistorized broadband amplifier that has a low input resistance (3 ohms). Such an amplifier (current gain, 30; pulse rise time, 8 nsec) permits obtaining reliable starting pulses with target currents over 50 microamp and ion-current pulses longer than 5 nsec. "The authors wish to thank the workers of A. P. Klimov's group for their help in experimenting with the accelerator and V. S. Shorin and A. A. Metlev who helped in carrying out some parts of the project." Orig. art. has: 4 figures.

Proton beam



SUB CODE: 18.09/ SUB DATE: 08Jan65/

ORIG REF: 001/ OTH REF: 004/ ATD PRESS: 4223

Card 1/1

STAVITSKAYA, Anna Borisovna; ARON, Dina Izrailevna

[Method for studying the physical development of children and adolescents] Metodika issledovaniia fizicheskogo razvitiia detei i podrostkov. Moskva, Medgiz, 1959. 73 p. (MIRA 13:12)

(CHILDREN--GROWTH)

GOL'DFEL'D, A., doktor med.nauk; STAVITSKAYA, A.B.

Conference on studying the physical development of children
of the U.S.S.R. *Pediatrics* 37 no.4:95 Ap '59. (MIRA 12:6)
(CHILDREN--GROWTH)

ARON, D.I.; STAVITSKAYA, A.B., kand. biol. nauk; GOL'DFEL'D, A.Ya., doktor med. nauk, red.; MERKOV, A.M., doktor med. nauk, red.; TSEYTLIN, A.G., doktor med.nauk, red.; URAZAYEV, N.M., red.; ZUYEVA, N.K., tekhn. red.

[Materials on the physical development of children and youths in some cities and rural settlements of the U.S.S.R.] Materialy po fizicheskomu razvitiyu detei i podrostkov nekotorykh gorodov i sel'skikh mestnostei Soiuza SSR. Pod red. A.IA. Gol'dfel'd, A.M.Merkova, A.G.Tseitlina. Moskva, Medgiz. No.1. 1962. 374 p. (MIRA 15:10)

1. Institut organizatsii zdravookhraneniya i istorii meditsiny im. N.A.Semashko (for Aron). 2. Institut pediatrii Akademii meditsinskikh nauk SSSR (for Stavitskaya).
(CHILDREN—GROWTH)

L 27055-66 EWT(1)/EWT(m)/EWP(j)/T/ETC(m)-6 DS/WW/RO/JK/RM

ACC NR: AF6017433

SOURCE CODE: UR/0069/65/027/006/0854/0858

AUTHOR: Ovchinnikova, Ye. N.; Stavitskaya, A. V.

ORG: Odessa Hydrometeorological Institute (Odesskiy gidrometeorologicheskiy institut)

TITLE: Interaction of an aqueous aerosol flow with a plane obstacle

SOURCE: Kolloidnyy zhurnal, v. 27, no. 6, 1965, 854-858

TOPIC TAGS: flow velocity, aerosol, flow research, gas flow, gas mechanics, colloid chemistry

ABSTRACT: The relation between the coefficient of entrapment α by a plane obstacle of a monodisperse aerosol consisting of water droplets with a diameter of 7μ and the flow velocity of the aerosol was studied. The plane obstacle was a disk on which an agaroid film was stretched that was moistened with a CaCl_2 solution: α was determined experimentally on the basis of the increase in the weight of the obstacle as $\Delta m/Wsvt$, where Δm is the mass of water retained by the disk, W the moisture content, s the area of the obstacle, v the velocity of flow, and t the time. Entrapment by inertia measured on obstacle films that were moistened with water only was deducted from the total entrapment and the coefficient of entrapment due to diffusion (α_{diff}) determined in this manner. α_{diff} decreased with increasing values of v in the 0.4-4 m/sec range, becoming practically zero at 3-4 m/sec, while the coefficient of entrapment by inertia increased. The $\alpha - v$ curves thus exhibited a min: α decreased at

Card 1/2

UDC: 532.5.071

L 27055-66

ACC NR: AP6017433

$v = 0.4-3$ m/sec for obstacle films with CaCl_2 (while increasing for films moistened with water only) and then increased at 3-4 m/sec. At $v < 3$ m/sec the diffusion mechanism of entrapment predominated, while at $v > 3$ m/sec entrapment took place chiefly by the inertia mechanism. At $v > 3$ m/sec, α no longer depended on the CaCl_2 concn. and the vapor tension of the CaCl_2 solutions.

Orig. art. has: 6 figures and 1 formula. [JPRS]

SUB CODE: 20, 07 / SUBM DATE: 05Sep64 / ORIG REF: 008 / OTH REF: 001

Card 2/2 *h*

AISKIN, Ya.I.; SHVACHKA, G.P.

Deformation vibrations of (OH) associated with strong hydrogen
bonds. Opt. i spekt. 7 no. 6:834-836 D '59. (MIRA 14:2)
(Hydrogen bonding) (Hydroxyl group—Spectra) i

5(4)

AUTHORS:

Stavitskaya, G. P., Smolin, Yu. I.,
Toropov, N. A., Poray-Koshits, Ye. A.

SOV/20-126-3-44/69

TITLE:

On Problems in the Crystallization of Hillebrandite at
Hydrothermal Conditions (K voprosu o kristallizatsii gillebrandita
v gidrotermal'nykh usloviyakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 616-618 (USSR)

ABSTRACT:

In the introduction to this paper it is pointed out that the phenomenon of the recrystallization of hillebrandite by the solution, as discovered at the laboratory of Academician P. A. Rebinder in the solidification of gypsum, is to be investigated. The samples, which were obtained from a stoichiometric mixture of an amorphous silicic acid and finely dispersed calcium oxide, were investigated by means of an electronic microscope, and the crystals were identified by means of an X-ray phase analysis. In eight pictures made with the electron microscope (Fig 1) the initial mixtures and the products of hydrothermal synthesis within a period of up to thirteen days, and in a diagram the corresponding ionization curves (Fig 2) are shown. The results obtained by the investigations show a crystallization developing in three stages:

- 1) Rapid precipitation of needle-shaped hillebrandite crystals

Card 1/2

**On Problems in the Crystallization of Hillebrandite at
Hydrothermal Conditions**

SOV/20-126-5-44/69

from the oversaturated solution. 2) A solution of thermodynamically fluctuating hillebrandite crystals with distorted structure. 3) Increase of hillebrandite crystals with regular lattice, i.e. recrystallization of hillebrandite by the solution. There are 3 figures and 2 references, 1 of which is Soviet.

ASSOCIATION: Institut ~~Kikhi~~ ~~silikatov~~ Akademii nauk SSSR (Institute of the Chemistry of Silicates of the Academy of Sciences, USSR)

PRESENTED: October 16, 1958 by P. A. Rebinder, Academician

SUBMITTED: August 21, 1958

Card 2/2

S/078/60/005/012/008/016
B017/B064

AUTHORS: Ryskin, Ya. I., Stavitskaya, G. P., Toropov, N. A.
TITLE: Infrared Absorption Spectra of Hydrated Silicates ✓
PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 12,
pp. 2727-2734

TEXT: Silicate hydration was studied by taking the infrared absorption spectra. Acid silicates form from silicon-oxygen radicals by bridge formation over hydrogen atoms according to $A - O - H \cdots O$ ($A = Si$). The properties of water contained in silicates were studied by means of the infrared spectra in the range of $1700-4000\text{ cm}^{-1}$, and it was found that the water contained is no constitution water but is adsorbed between the layers of the silicate lattice. The absorption spectrum of water in diopside ($Cu_6[Si_6O_{18}] \cdot 6H_2O$) was taken. The oscillation numbers of OH^- ions in crystalline silicates and hydroxo compounds were determined by measuring the absorption spectra of powders of these compounds. The hydrogen atom of the OH^- group is not able to form hydrogen bridges. To apply the

Card 1/2

Infrared Absorption Spectra of Hydrated
Silicates

S/078/60/005/012/008/016
B017/B064

infrared absorption spectra to structural analysis it is necessary to know the deformation oscillation of the hydroxyl group at which the hydrogen atom is displaced perpendicular to the binding direction. The oscillation number ν_{OH} is, above all, dependent on the degree of the covalence bond $A \sim O$. The capability of the SiOH group of forming shorter hydrogen bonds with active proton-acceptor atoms or -groups was proven. In the range of $3000 \sim 2000 \text{ cm}^{-1}$, the absorption spectra show the bands characteristic of the SiOH group. D. M. Kheyker, O. I. Gracheva, L. S. Zevin, and A. N. Lazarev are mentioned. There are 4 figures, 3 tables, and 44 references: 20 Soviet, 10 US, 6 British, 1 Canadian, 1 French, and 7 German. ✓

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the Academy of Sciences USSR)

SUBMITTED: September 10, 1959

Card 2/2

S/051/60/008/005/003/027
E201/E491

AUTHORS: Ryskin, Ya.I. and Stavitskaya, G.P.

TITLE: A Spectroscopic Investigation of the Hydrogen Bond in Acid Silicates and Phosphates

PERIODICAL: Optika i spektroskopiya, 1960, Vol.8, No.5, pp.606-613

TEXT: The infrared absorption spectra (420-3600 cm⁻¹) were obtained for Ca₂(SiO₃OH)OH, Ca(SiO₃OD)OD, K₂HPO₄, K₂DPO₄, K₂HPO₄·3H₂O, BaHPO₄, CaDPO₄. The samples were in the form of powders suspended in freshly dried paraffin and fluorinated oils. The spectra were obtained by means of single-prism autocollimation instruments: VIKS M-3 (700-3000 cm⁻¹, NaCl prism), ISP-14 (420-700 cm⁻¹, KBr prism), IKS-11 (3700-2000 cm⁻¹, LiF prism). The spectra obtained are shown in Fig.2 and 3. The observed bands were found to be due to normal vibrations of O₃XOH - type ions (where X = Si, P), of water molecules and of metal-oxygen polyhedra (Table 1). The interaction of interionic hydrogen bonds and internal X-O bonds is discussed. The frequencies of planar deformation vibrations 60H of O₃SiOH and O₃POH ions were obtained and are listed in Table 2. There are 3 figures, 2 tables and 15 references: 2 Soviet, 4 English, Card 1/2

✓B

STAVITSKAYA, G.P.; RYSKIN, Ya.I.

Hydrogen bond in acid germanates. Part 1. Infrared spectrum of
strontium dihydrogermanate. Opt.i spektr. 10 no.3:343-347 Mr '61.
(MIRA 14:8)

(Germanates) (Infrared rays)

STAVITSKAYA, G.P.; RYSKIN, Ya.I.

Role of water in the formation of highly condensed silicates
and germanates. Report No.12: Dehydration of strontium dihydrogermanate
and $\text{SrO} \cdot \text{GeO}_2 \cdot x\text{H}_2\text{O}$ gel. Izv. AN SSSR. Otd. khim. nauk no.10:1708-1717
0 '62. (MIRA 15:10)

1. Institut khimii silikatov im. I.V.Grebenshchikova AN SSSR.
(Strontium germanate) (Dehydration (Chemistry))

RYSKIN, Ya.I.; STAVITSKAYA, G.P.

Role of water in the formation of highly condensed silicates and germanates. Report No.3: Infrared absorption spectrum of synthetic afwillite. Izv.AN SSSR Otd.khim.nauk no.5:793-798 My '63. (MIRA 16:8)

1. Institut khimii silikatov im. I.V.Grebenshchikova AN SSSR.
(Afwillite--Absorption spectra)

BAZHENOV, N.M. [deceased]; KOL'TSOV, A.I.; KIRPICHNIKOVA, N.P.; RYSKIN, Ya.I.;
STAVITSKAYA, G.P.; BOYKOVA, A.I.; TOROPOV, N.A.

Infrared absorption spectra, proton magnetic resonance, and
structure of dicalcium silicates α - and β -hydrates. Izv. AN
SSSR. Ser.khim. no.3:409-416 Mr '64. (MIRA 17:4)

1. Institut khimii silikatov im. I.V.Gregenshchikova AN SSSR i
Institut vysokomolekulyarnykh soyedineniy AN SSSR.

RYSKIN, Ya.I.; STAVITSKAYA, G.P.; MITROPOL'SKIY, N.A.

Infrared spectrum and structure of sodium hydrosilicate
 $\text{Na}_2\text{O} \cdot \text{SiO}_2 \cdot 6\text{H}_2\text{O}$. Izv. AN SSSR. Ser.khim. no.3:416-421 Mr
'64. (MIRA 17:4)

1. Institut khimii silikatov im. I.V.Grebenshchikova AN SSSR.

STAVITSKAYA, L.I.

Changes with age in the ribonuclease activity of tissues. Uch.zap.KGU
68:59-63 '56 (MIRA 11:11)

1. Kafedra fiziologii cheloveka i zhivotnykh Nauchno-issledovatel'-
skogo instituta biologii i biologicheskogo fakul'teta Khar'kovskogo
ordena trudovogo krasnogo znameni gosudarstvennogo universiteta imeni
A.M. Gor'kogo.

(AGE) (RIBONUCLEASE)

СТАВИТСКАЯ Л.И.

B-4

USSR/General Biology - Individual Development

Abs Jour : Ref Zhur - Biol., No 3, 1958, No 9498

Author : Makhin'ko, V.I., Pashkova, A.A., Stavitskaya, L.I.

Inst : Not Given

Title : Data on Physiology of Embryonal Development in Poultry. IV.
Changes in Respiration Intensity and Speed of Growth of Some
Organs in Duck Embryo During Incubation

Orig Pub : Uch. zap. Khar'kovsk. un-t, 1956, 68, 235-244

Abstract : A study was conducted in the Warburg microrespirometer of oxygen consumption by a pulp of posterior extremity skeletal muscles, heart muscle, liver and cerebrum of Peking duck embryos from the 10th to the 26th day of development. The respiration intensity of the liver is decreased during the development period; in the skeletal muscle it is decreased to the 21st day, but is increased at the end of incubation; it is increased in the heart muscle and especially in the

Ca Card : 1/2

NIKITIN, V.N. [Nikitin, V.M.]; STAVITSKAYA, L.I. [Stavyts'ka, L.I.]

Content changes in the fractions of tissue phosphorus and "structural" proteins in the liver of one-year-old rats, effected by a prolonged growth-retarding diet and subsequent fattening. Ukr.biokhim.zhur. 32 no.1:54-66 '60. (MIRA 13:6)

1. Department of Human and Animal Physiology of the A.M. Gorkiy State University of Kharkov.

(PHOSPHORUS IN THE BODY)

(PROTEINS)

NIKITIN, V.N.; STAVITSKAYA, L.I.

Growth-arresting diet and its effect on age-connected changes in the organism. Report No.1: Changes in the tissue fractions of phosphorus and structural proteins of the liver in young rats caused by a prolonged growth-arresting diet and subsequent normal nutrition. (MIRA 14:3)
Uch. zap KHGU 108:111-123 '60.

1. Kafedra fiziologii cheloveka i zhitnykh Khar'kovskogo gosudarstvennogo universiteta.
(NUCLEOPROTEINS) (AGE) (MALNUTRITION)

NIKITIN, V.N.; STAVITSKAYA, L.I.

Growth-arresting diet and its effect on age-connected changes in the organism. Report No.2: Changes in the tissue fractions of phosphorus and structural proteins of the liver in adult (year-old) rats caused by a prolonged growth-arresting diet and subsequent normal nutrition. Uch. zap KHGU 108:125-133 '60. (MIRA 14:3)

1. Kafedra fiziologii cheloveka i zhivotnykh Khar'kovskogo gosudarstvennogo universiteta.
(NUCLEOPROTEINS) (AGE) (MALNUTRITION)

STAVITSKAYA, L.I.

Growth-arresting diet and its effect on age-connected changes in the organism. Report No. 4: Changes in the weight of some endocrine glands and vitamin C content of adrenal glands in white rats with arrested growth. Uch. zap KHGU 108:143-148 '60. (MIRA 14:3)

1. Kafedra fiziologii chelovka i zhivotnykh Khar'kovskogo gosudarstvennogo universiteta.

(ENDOCRINE GLANDS)
(MALNUTRITION)

(ASCORBIC ACID)
(AGE)

NIKIPIN, V.N.; STAVITSKAYA, L.I.; BELOKON, N.S.; PAYKOVA, L.N.;
SPRENNÉ, M.V.; YASHINA, L.N.

Ontogenesis of the adrenal glands and thymicolymphoid organs
under normal conditions and following intermittent growth-
inhibiting diet. Zhur. evol. biokhim. i fiziol. 1 no.1:45-51
Jan-F 1965. (MIRA 18:6)

1. Kafedra fiziologii cheloveka i zhiivotnykh i Otdel ontofiziologii
Biologicheskogo instituta Khar'kovskogo gosudarstvennogo universiteta
im. A.M. Gorkogo.

YEREMENKO, V.V., kand.tekhn.nauk; KHRULEV, V.M., kand.tekhn.nauk;
STAVITSKAYA, L.M., inzh.

Using plastic coating on facing tiles manufactured from wood
wastes. Der.prom. 9 no.9:16 S '60. (MIRA 13:9)

1. Zapadnosibirskiy filial Akademii stroitel'stva i arkhitektury
SSSR.

(Wood, Compressed)

(Aminoplastics)

STAVITSKAYA, R. A.

36962. Perel'man, I. B., RAISWA, M. V. i STAVITSKAYA, R. A. Ve etativnyye sdvigi pod vliyaniyem vvedeniya prozorina. V sb: Nevrologiya voyen. vremeni. T. II. M., 1949, c. 193-213.

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, 1949 Moskva

STAVITSKAYA, T. S.

1 Jun 52

USSR/Physics - Semiconductors

"Temperature Dependence of Mobility of Electricity Carriers in Semiconductors,"
Ye. D. Devyatkova, Yu. F. Maslakovets, L. S. Stilbans, T. S. Stavitskaya

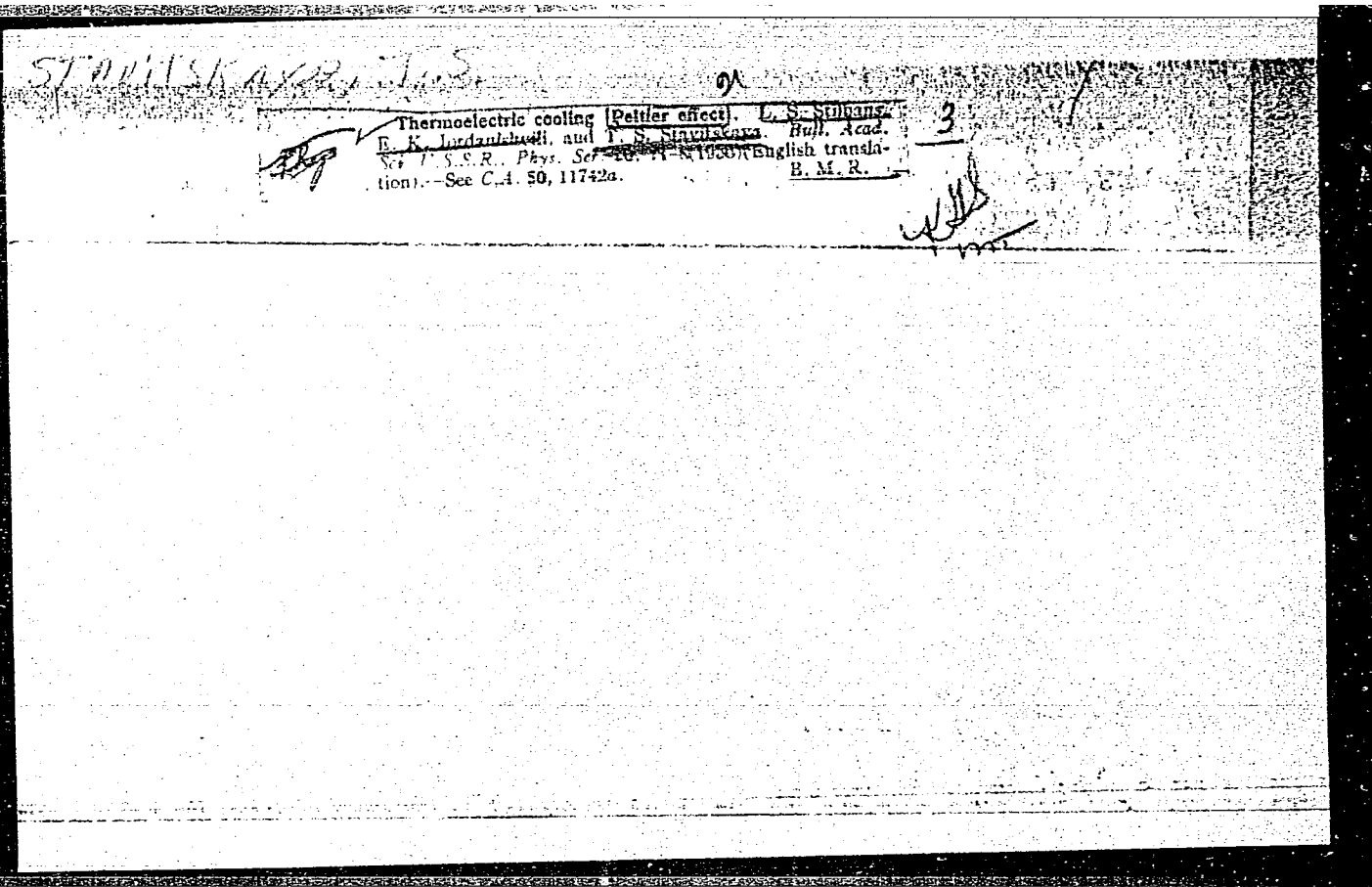
"Dok Ak Nauk SSSR" Vol 84, No 4, pp 681-682

The relation $\mu \propto AT^{-3/2}$ was tested on silicon, germanium and intermetallic compd
SbZn and on a number of compds considered to be intermediate between atomic and
ionic in a temp range 20-500°. Plotted results indicated a relation $\mu \propto AT^{-3}$.
Indebted to A.F.Ioffe. Received 1 Apr 52

232T99

IOFFE, A.F.; STIL'BANS, L.S.; IORDANISHVILI, Ye.K.; STAVITSKAYA, T.S.;
PROLOV, A.A., redaktor izdatel'stva; PEVZNER, R.S., tekhnicheskii
redaktor

[Thermoelectric refrigeration] Termoelektricheskoe okhlazhdenie.
Moskva, Izd-vo Akademii nauk SSSR, 1956. 107 p. (MIRA 9:11)
(Refrigeration and refrigerating machinery)
(Semiconductors)



Stil'bens, L.S.

Category : USSR/Electricity - Semiconductors

G-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4225

Author : Stil'bens, L.S., Iordanishvili, Ye.K., Stavitskaya, T.S.

Inst : Institute of Semiconductors, Academy of Sciences USSR, Leningrad

Title : Thermoelectric Cooling

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 1, 81-88

Abstract : A.F. Ioffe's theory of thermoelectric cooling is explained. The conditions under which the highest cooling coefficient and the maximum temperature drop is obtained are discussed. Experimental data are given for $PbTe$, and the theoretical deductions are confirmed. The author lists practical applications of thermoelectric cooling, developed by the Institute of Semiconductors of the Academy of Sciences, USSR, jointly with the commercial organizations, such as a domestic refrigerator, hygrometer, etc.

Card : 1/1

А/04/15

AUTHOR: KOLOMOYETS, N.V., STAVITSKAYA, T.B., UTIL'DANS, L.S. PA - 2173
 TITLE: Thermoelectric Properties of PbTe - PbSe (Issledovaniye termoelektricheskikh svoystv telluristogo i selenistogo svintsa, Russian)
 PERIODICAL: Zhurnal Tekhn.Fis. 1957, Vol 27, Nr 1, pp 73-81 (U.S.S.R.)
 Received: 2 / 1957 Reviewed: 4 / 1957
 ABSTRACT: This paper investigates PbTe and PbSe and a solid solution of PbTe - PbSe, i.e. polycrystalline samples produced according to the metal-ceramic process. The thermoelectromotoric force, electric conductivity, and the HALL effect were measured by means of the usual method.
The range of high temperatures: A diagram demonstrates the temperature dependence of the thermoelectromotive force for a sample of electronic PbTe (concentration of the carriers $n = 9,9,10^{18} \text{ cm}^{-3}$) in the temperature interval 0 - 450° C. The following facts result from this and other diagrams: a) The dependence of thermoelectromotive force on the temperature and concentration of charge carriers agrees approximatively with the theory. b) The experimental values of the thermoelectromotive force differ with respect to their absolute value from the theoretical value by 120 microvolt/degrees for PbTe. In the case of PbSe this difference is somewhat smaller. It may have two reasons:

Card 1/3

PA - 2173

Thermoelectric Properties of PbTe - PbSe.

of composition of the sample from the initial components. With decreasing temperature also the scattering cross section is reduced. The case considered here is similar to the dispersion of light in atmosphere. (11 illustrations).

ASSOCIATION: Institute for Semi-Conductors of the Academy of Science of the U.S.S.R., Leningrad

PRESENTED BY:

SUBMITTED: 11/1955

AVAILABLE: Library of Congress

Card 3/3

57-9-33/40

On the Mobility of Electrons and Holes in Solid Solutions Obtained on the
Basis of PbTe and Bi₂Te₃

of a compound destined to be used as material for the positive thermoelement branch without thereby reducing the mobility of holes, it is necessary partly to replace the cations in the lattice. On the other hand, the anions must be replaced in the material used for the negative branch. There are 4 figures and 8 Slavic references.

ASSOCIATION: Institute for Semiconductors, Leningrad
(Institut poluprovodnikov, Leningrad)

SUBMITTED: June 24, 1957

AVAILABLE: Library of Congress

Card 2/2

SAVOYLOVICH, A.G.
STAVITSKAYA, T.S.

53-5-5100

AUTHOR
TITLE

SAVOYLOVICH, A.G.
Liffe, A.F., Stavitskaya, T.S., Iordanishvili, Ye.K., Stavitskaya, T.S.,
Thermoelectric Refrigeration". (Publishing House of the Academy of
Science, Moscow-Leningrad, 1956, p.108. 3,70 Rb.)
(Liffe, A.F., et al. "Termoelektricheskiye khlaz'deniya" (Russian)
Uspekhi Fiz. Nauk, 1957, Vol 62, Nr 3, pp 375 - 376 (U.S.S.R.)

PERIODICAL
ABSTRACT

The book consists of three chapters dealing with refrigeration by
thermoelectric means, giving theoretical and experimental data.
In chapter 1. the theory of thermoelectric refrigeration is developed.
Further, the efficiency of a cascade battery is calculated and it is
shown that more than two steps are useless.
Chapter 2. "The experimental investigations of thermoelectric proper-
ties of semiconductors" above all describes and evaluates the methods
for measuring the Peltier and Thompson coefficients, the EMF, the
electric conductivity, etc. The thermoelectric properties of the best
initial material for a thermoelement PbTe - PbSe are most thoroughly
treated.
Chapter 3. deals with the application of thermoelectric refrigeration.
It is already today possible to construct household refrigerators with
thermoelements, which are more economical than absorption refrigera-
tors.

Card 1/2

55-6-3/10

Ioffe, A.F., Stil'bans, L.S., Iordaniashvili, Ye.A., Stavinskaya, T.S.,
'Thermoelectric Refrigeration'. (Publishing House of the Academy of
Science, Moscow-Leningrad, 1956, p.168, 3,75 Rb.)

The book which is written in clear language and is very well subdivi-
ded may be of use for physicists, chemists and refrigeration engineers.

ASSOCIATION
PRESENTED BY
SUBMITTED
AVAILABLE

Not given

Library of Congress

Card 2/2

AUTHORS: Stavitskaya, T. S. ; Stil'bans, L. S. 57-28-3-7/53
TITLE: On the Influence of Degeneration on the Efficiency of Semiconductor Thermocouples (O vliyaniy vyrozhdeniya na effektivnost' poluprovodnikovyykh termoelementov)
PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 3, pp.484-488 (USSR)

ABSTRACT: It was determined here to which extent taking into account of the degeneration influences the conclusions of theory with regard to the conditions for an optimum of the efficiency of thermocouples. The theoretical relations were compared with the experimental results. At first the theoretical conditions (correlations) are given, that is to say, the formulae for the carrier-concentration n , for the coefficient of the thermoelectromotive force, for the electric conductivity σ and the constant A in the Wiedemann-Franz-law as functions of the reduced value of the chemical potential

Card 1/4 $\mu^* = \frac{\mu}{kT}$. It is shown that in the case of $r = 0$ (r denotes

57-28-3-7/33

On the Influence of Degeneration on the Efficiency of Semiconductor Thermo-couples

the exponent in dependence of the free length of path of the electron on the energy) taking into account of the degeneration only introduces insignificant corrections into the conditions for the optimum of $\alpha^2\sigma$. In the case $r = 1$ and $r = 2$, however, such taking into account fundamentally changes the picture. In the case of $r = 1$ $\alpha^2\sigma$ has no extremum and with the increase in n asymptotically tends toward a constant value. In the case of $r = 2$ $\alpha^2\sigma$ increases illimitably. This is also to be seen from formulae (4b) and (5b) for the case of a high degeneration at $\mu^* \gg 0$. The theoretical relations given in chapter 1 were experimentally checked, in a number of samples of electron-lead-tellurite, with a carrier-concentration of from $5 \cdot 10^{17}$ to $2 \cdot 10^{20} \text{ cm}^{-3}$. It is shown that on the one hand the experimental results qualitatively agree with those of theory, but that on the other hand essential divergences also exist. 1) With a rise of temperature $\alpha^2\sigma$ decreases more rapidly than it would have to according to theory, 2) the maximum $\alpha^2\sigma$ values of the curves, corresponding to the different carrier-concentrations, are not equal as this should be, according to theory, but decrease with an increase of carrier-

Card 2/4

On the Influence of Degeneration on the Efficiency of Semiconductor Thermo-
couples

57-28-3-7/33

-concentration. Both deviations from theory are due to the fact that in the range of high temperatures $1_0(T)(1 - \text{free length of path of the electron})$ is proportional to the square of the temperature and not to the first power as was assumed earlier. It is concluded that in electron-dispersions of the heat vibrations of an atom lattice the conclusions of the theory with regard to the dependence of $\alpha^2 \sigma$ on the carrier-concentration and the temperature generally agree with the experimental results. The observed divergences are due to the fact that the present electron-theory of solids does not sufficiently exactly render the dependence of the carrier-mobility on its concentration and on temperature. At present no possibility exists to compare the theoretical rules governing the case $r = 1$ with experiment, as no substance was hitherto found in which the dependence of the free length of path of the electrons on their energy is expressed by this law. There are 8 figures, and 2 Soviet references.

Card 3/4

57-28.3-7/33
On the Influence of Degeneration on the Efficiency of Semiconductor Thermocouples

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad
(Leningrad Institute for Semiconductors, AS USSR)

SUBMITTED: October 1, 1957

- | | |
|----------------------------------|---------------------------------|
| 1. Thermocouples---Effectiveness | 2. Thermocouples---Theory |
| 3. Thermocouples Test results | 4. Semiconductors---Performance |

Card 4/4

24.7700
24(3), 24(6)
AUTHORS:

67383
SOV/181-1-9-1/31
Yefimova, B. A., Stavitskaya, T. S., Stil'bans, L. S.,
Sysoyeva, L. M.

TITLE:

On the Scattering Mechanism of Carriers in Some Solid
Solutions on the Basis of Lead- and Bismuth Tellurides 21

PERIODICAL:

Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1325 - 1332
(USSR)

ABSTRACT:

The present paper supplies a store of experimental material concerning the relation between mobility of electrons and holes on the one hand, and the composition of various lead-tellurium and bismuth-tellurium alloys on the other. The first part of the paper deals with the dependence of the free-path time of electrons and holes on the position of the impurity atoms in the lattice. Following suggestions by A. V. Ioffe and A. F. Ioffe, the scattering of neutral impurities was investigated with the aim of increasing the efficiency of thermocouples. The results obtained by several previous investigations on this subject are briefly discussed and next, the mobility-to-composition curves of the systems Bi_2Te_3 - Sb_2Te_3 4

Card 1/4

67383

On the Scattering Mechanism of Carriers in Some Solid Solutions on the Basis of Lead- and Bismuth Tellurides SOV/181-1-9-1/31

Bi_2Te_3 - Bi_2S_3 , and PbTe - PbSe (Figs 1-3) are dealt with. The abscissa is given by the concentration (in atom%) of the second component, while the ordinate is given by the mobility of holes (Curve 1) and electrons (Curve 2). In the first case, the hole mobility rises with concentration, whereas the electron mobility drops; in the second case, the hole mobility drops, while the electron mobility remains about constant. In the third case, finally, the two mobility curves have a flat minimum at about 50% PbSe . This is indicative of the fact that electrons move toward the cation sublattice, and the holes toward the anion sublattice. The relation between mobility and composition in the systems Bi_2Te_3 - Bi_2Se_3 (Fig 4) and PbTe - SnTe (Fig 5) is more complicated. In the first case both curves have a minimum, in the second case the hole mobility has a minimum with low SnTe -concentration and thereupon rises steeply, while the electron mobility drops monotonously. The electron mobility in bismuth telluride is about four times less than in bismuth selenide, and the hole mobil-

Card 2/4

67383

On the Scattering Mechanism of Carriers in Some Solid Solutions on the Basis of Lead- and Bismuth Tellurides SOV/181-1-9-1/31

ity in Bi_2Te_3 is by the 1.5 fold less than in Bi_2Se_3 . Conditions in PbTe-SnTe (Fig 5) are even more complicated. The hole mobility rises after a minimum, while the electron mobility drops after a maximum. In a similar manner, the second part of the paper investigates the dependence of the free-path time on the carrier energy. A number of diagrams are shown and discussed. Thus, figure 7 shows the temperature dependence of mobility for pure PbTe and for $\text{PbTe} + 5\% \text{ PbSe}$ with equal carrier concentration ($n = 4 \cdot 10^{19}$); figure 8 shows the temperature dependence of $\nu_{n.i.}$ (the collision frequency

$\nu = \nu_{th} + \nu_i + \nu_{n.i.}$; ν_n denoting the frequencies of collisions with thermal vibrations, ions and neutral impurities). Figure 9 shows the temperature dependence of mobility μ in pure PbTe and $\text{PbTe} + 5\% \text{ PbSe}$, figure 10 $\nu_{n.i.}/T = f(\lg \epsilon)$, figure 11 $\mu(n)$, figure 12 τ as a function of ϵ ($\tau \sim \epsilon^{-0.8}$). Figures 13-19 show the results of similar investigations for the systems PbTe-SnTe and $\text{Bi}_2\text{Te}_3\text{-Bi}_2\text{Se}_3$. In all these cases, the free-path

Card 3/4

67383

On the Scattering Mechanism of Carriers in Some Solid SOV/181-1-9-1/31
Solutions on the Basis of Lead- and Bismuth Tellurides

time is by way of approximation inversely proportional to temperature, which is in contradiction with the theory. It is explained by the fact that triple collisions (electron - impurity atom - phonon) may occur in a lattice containing impurities. Theoretical investigations were conducted by T. A. Kontarova. There are 19 figures and 4 Soviet references.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of
Semiconductors of the AS USSR, Leningrad)

SUBMITTED: May 19, 1959

Card 4/4

34.7766

44(7)

Yegorova, M. N., Golikova, O. A., Isifimova, Y. A., Kute-

sov, Y. A., Slavinskaya, E. S., Sill, L. S., Sytycheva, L. A.

Investigation of the Scattering Mechanism of Carriers in Some

Semiconductors

Physika tverdogo tela, 1959, Vol. 1, No. 9, pp 1335 - 1344 (USSR)

The above investigations were conducted on lead telluride and

bismuth, and aimed at the following: 1) with electrons scatter-

ing on thermal vibrations of the crystal lattice, the depend-

ence of the time τ required for the traveling of the free

pathlength on the temperature was determined. 2) In the scattering

energy of electrons on the impurities and also on the energy of

the ionized impurity atom one finds the dependence of τ on

the concentration of the impurities and also on the energy of

the electrons. A qualitative picture of these phenomena should

be determined on the basis of the quantitative relations

obtained. The investigations were mainly conducted on polycr-

ystalline samples produced by powder metallurgy. The depend-

ence of τ on the energy ϵ of the electron and also on the

intensity of the thermal vibrations is still unclear; these

dependences, however, can be separated from one another by

appropriate investigations. Among other things, the follow-

ing holds for lead telluride: $\tau \sim T^{-5/2}$ holds throughout the

temperature range investigated for the mobility of a sample

with the concentration of $5 \cdot 10^{17}$. In the case of concentra-

tions of $2 \cdot 10^{18}$ and $1.5 \cdot 10^{19} \text{ u} \cdot \text{cm}^{-3}$, $\tau \sim T^{-5/2}$ holds in the range

of high temperatures, and in the case of low temperatures

$\tau \sim T^{-1/2}$ holds. The latter sample is already partially

degenerated at low temperatures, and this degeneration

becomes stronger with increasing concentration of the

impurities. The two-phonon processes are likely to play the

principal part at higher temperatures. The temperature

dependence of the mobility of degenerated and non-degenerated

samples is characterized by the factor T^m . In this connection

$m = -1/2$ holds, which corresponds to the electron scattering

on the acoustic branch of the atom lattice. The dependence of

the thermoelectromotive force on the temperature and on the

concentration of the carriers are in satisfactory agreement

with the theory. Also in the case of n-type Bi_2Te_3 and Bi_2Se_3

the dependence of the thermoelectromotive force on the con-

centration of the carriers is in good agreement with the

theory. This also holds for the temperature dependence of

mobility in Bi_2Te_3 with low thermoelectromotive forces and

with low temperatures. The temperature dependence of mobility

is steeper with weakly degenerated samples of PbTe and Bi_2Te_3

than in the case of the strongly degenerated ones. Precisely

the contrary, however, holds for bismuth sulfide. Next, the

authors investigate the scattering of electrons on the ions of

an impurity for the alloy $80\% \text{Bi}_2\text{Te}_3 + 20\% \text{Bi}_2\text{Se}_3$ on pressed

samples of the n-type. Cu^+ (donor) and Pb (acceptor) were

selected as impurities. Mobility drops appreciably with in-

creasing number of ions. In bismuth telluride, with scatter-

ing on the ions of the impurity, the time required by the

electrons for traveling through the free pathlength does not

depend on energy. Results obtained in the investigation under

review agree with Karginov's theory (Ref 5). For Bi_2Te_3

$\frac{1}{u(n)} = \frac{1}{u_0(n)} + 5 \ln \frac{1}{2}$ holds. Here u_0 denotes the theoretical

dependence of u on n for $m = 1/2$, where n denotes the number

of electrons (and ions) and S_1 is the transversal cross section

of the ion. A similar relation also holds for the dependence

of the motion on temperature. There are 19 figures and

6 references, 4 of which are Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of

Semiconductors of the AS USSR, Leningrad)

SUBMITTED: May 19, 1959

Card 1/4

Card 2/4

Card 3/4

9.4300 (1035, 1138, 1143)

S/181/60/002/009/008/036
B004/B056

AUTHORS: Stavitskaya, T. S., Stil'bans, L. S.

TITLE: The Scattering of Electrons ¹ on Impurity Ions in Lead Telluride

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 9, pp. 2082-2084

TEXT: The present paper aimed at solving the problem as to whether in PbTe the relaxation time τ_i of the carriers is independent of their energy.

Fig. 1 represents the measured mobility u of the carriers as a function of their concentration, and the theoretical curve for the case in which scattering on impurity ions occurs. Fig. 2 shows mobility as a function of temperature for PbTe samples with electron concentrations of

$1.5 \cdot 10^{19}$, $5 \cdot 10^{19}$, and $1.6 \cdot 10^{20} \text{ cm}^{-3}$. On the assumption that the total number of collisions ($\nu = 1/\tau$) results from the addition of collisions with impurity ions ($\nu_i = 1/\tau_i$) plus the collisions on thermal lattice vibrations ($\nu_t = 1/\tau_t$), ν_i was calculated from Fig. 1, $u(T)$ was corrected,

Card 1/2

The Scattering of Electrons on Impurity Ions
in Lead Telluride

84067
S/181/60/002/009/008/036
B004/B056

and the temperature dependence $u_0(T)$ in scattering on thermal vibrations was obtained. The results obtained by this calculation are represented in Figs. 3, 4. It follows from Fig. 3 that the number of collisions on ions is proportional to the number of ions: $1/u_1 = an$. The coefficient a depends neither on the concentration nor on the energy of the carriers. As the relaxation time of the carriers in the case of scattering on impurity ions is thus (like in bismuth telluride) independent of their energy, $1/u_0(T) = 1/u(T) - an$ (1) is written down, and from the data of Fig. 2 conversion according to equation (1) is carried out. The curves represented in Fig. 4 no longer show the break to be seen in Fig. 2. Thus, the latter had been caused by the scattering of the carriers on impurity ions. There are 4 figures and 3 references: 2 Soviet and 1 British.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad
(Institute of Semiconductors of the AS USSR, Leningrad)

SUBMITTED: March 5, 1960

Card 2/2

L 8162-66 EWT(1)/EWT(m)/ETC/EWG(m)/EWP(b)/EWP(t)/T IJP(c) RDW/AT/JD
 ACCESSION NR: AP5019890 UR/0181/65/007/008/2554/2556

AUTHOR: Stavitskaya, T. S.; Long, V. A.; Yefimova, B. A.

TITLE: Thermoelectric properties of n-PbTe at high temperatures

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2554-2556

TOPIC TAGS: lead compound, telluride, thermoelectric property, electric conductivity, thermal emf, Hall constant, carrier density, carrier scattering, forbidden band

ABSTRACT: To extend the range of temperatures and concentrations in which the thermoelectric properties of n-PbTe are known at present, the authors measured the electric conductivity, the thermal emf coefficient, and the Hall constant in the temperature interval 300 -- 1000K with the electron concentration varying from 1×10^{19} to $1 \times 10^{20} \text{ cm}^{-3}$. The measurements were made with single-crystal and polycrystalline samples of n-PbTe, the properties of which were practically the same in the investigated temperature and concentration ranges. The results are shown in Fig. 1 of the Enclosure. The measurements have shown that, in the investigated region of temperatures and concentrations, the conductivity is essentially of the impurity type. The effective mass has a temperature dependence in the form

Card 1/3

L 8162-66

ACCESSION NR: AP5019890

$m^* \sim T^{0.6} \text{ -- } 1.0$. The Hall constant remains practically constant, and the electron mobility varies like $\mu \sim T^{-3.5}$. The results indicate that the thermal electric properties of strongly alloyed n-PbTe in the temperature interval 100 -- 1000K can be explained fully by assuming a single type of carriers and acoustic scattering. The temperature dependence of the effective mass agrees qualitatively with the temperature variation of the width of the forbidden band. Orig. art. has: 2 figures, 1 formula and 1 table.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AN SSSR) Leningrad 44, 55

SUBMITTED: 31Mar65

ENC: 01

SUB CODE: SS

NR REF SOV: 004

OTHER: 002

Card 2/3

ACCESSION NR: AP5019890

ENCLOSURE: 01

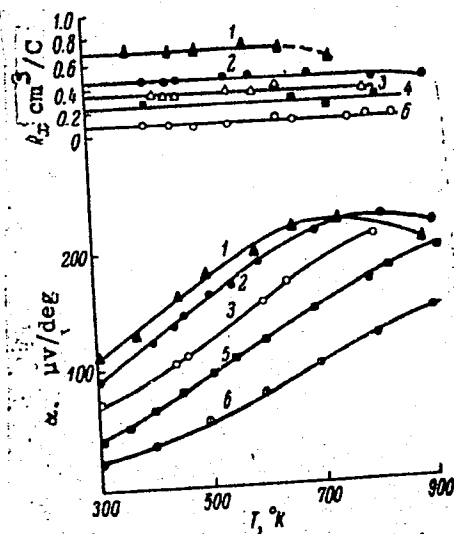


Fig. 1. Temperature dependence of Hall coefficients R and thermal emf α for n-PbTe with different carrier densities

jw
Card 3/3

ACC NR: AP7002395

SOURCE CODE: UR/0363/66/002/012/2096/2102

AUTHOR: Stavitskaya, T. S.; Long, V. A.; Yefimova, B. A.

ORG: Institute of Semiconductors, Academy of Sciences, SSSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Thermoelectric properties of n-PbTe at high temperatures

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 12, 1966, 2096-2102

TOPIC TAGS: lead compound, telluride, thermoelectric property, semiconductor carrier, carrier scattering

ABSTRACT: The thermal emf α , electric conductivity σ and Hall effect R were measured over a wide range of temperatures (300-950°K) and carrier concentrations (10^{18} - 10^{20} cm⁻³) on single-crystal and polycrystalline n-PbTe samples. It is shown that in order to account for the properties of n-PbTe up to 950°K and $n \sim 10^{20}$ cm⁻³, it is sufficient to consider a single type of carriers, i. e., only the four-ellipsoid model of <111>. For samples with $n \sim 1 \times 10^{19}$ cm⁻³ over the entire temperature range studied, the function $m^*(T)$, where m^* is the effective electron mass, is entirely accounted for by the temperature dependence of the forbidden gap width. At higher concentrations, a certain discrepancy apparently due to the nonparabolicity of the conduction band is observed between the experimental and theoretical data. The following

Card 1/2

UDC: 546.815'24:541.12.03

ACC NR: AP7002395

results were obtained for the temperature dependences of m^* and mobility u at $T \sim 500^\circ\text{K}$:

$$m^* \sim T^{0.6-0.8}, u \sim T^{-3.5}.$$

It is shown that when $T > 500^\circ\text{K}$, the predominant mechanism of scattering up to $n \sim 1 \times 10^{20} \text{ cm}^{-3}$ is scattering on acoustic phonons. Authors thank B. Ya. Moyzhes and L. S. Stil'bans for their steady interest in the work and participation in the discussion of the results. Orig. art. has: 8 figures, 4 formulas and 1 table.

SUB CODE: 20/ SUBM DATE: 21Jun65/ ORIG REF: 004/ OTH REF: 004

Card 2/2

STAVITSKAYA, Z.

Details of considerable importance. Standartizatsiia 29
no.9:40 S '65. (MIRA 18:12)

STAVITSKIY, A.I., prof. (Moskva)

Limits of operative intervention in the treatment of cancer.
Khirurgiia 36 no.8:3-11 Ag '60. (MIRA 13:11)

1. Deystvitel'nyy chlen AMN SSSR.
(CANCER)

ZISMAN, L.M., inzh.; MIKHAYLOV, A.P., inzh.; ROSMAN, L.V., inzh.;
STAVITSKIY, A.Ye., inzh.

Group control of the excitation in hydraulic generators by means
of a central regulator. Elek.sta. 29 no.11:34-37 N '58.
(MIRA 11:12)

(Electric generators) (Automatic control)

ACC NR: AP7008867

SOURCE CODE: UR/0105/66/000/008/0092/0093

AUTHOR: Stavitskiy, A. Z.

ORG: none

TITLE: Scientific and Technical Conference of experience of usage of relayed protective devices and electro-automatics devices

SOURCE: Elektrichestvo, no. 8, 1966, 92-93

TOPIC TAGS: electric power plant, turbine

SUB CODE: 10

ABSTRACT: The conference was held in Tula 11-15 April 1966. The conference was primarily concerned with two problems in connection with the introduction of 300-500 and 800 megawatt power units at electric power stations in the future: a) The usage of relay protective and electro-automatics devices on 150-300 Mw power units; b) The mastery of experimental laboratory and industrial samples of relay protective devices using semiconductor devices and magnetoelectric relays. Reports were heard in particular on: The usage of relay protective devices for powerful energy units; Semiconductor protective devices for generator-transformer units; Remote control protection using magneto-electric relays for low ground current systems; Signaling systems informing remote points of the operation of relay and other protective devices; Individual circuits for protecting electrical equipment; Analysis of the operation of control systems for turbines and other power station equipment; Reliability of relay protective equipment; Analysis of breakdowns connected with the operation of relay protective equipment and other phases of the application of relay protection equipment. [JPRS: 38,330]

Card 1/1

UDC: 621.316.925.1

SPAVITSKIY, B.I., Cand Tech Sci--(diss) "Study of the possibility of *the*
using ^{*e of*} electrospark ^{*treatment*} ~~machining~~ ^{*manufacture*} for the ~~production~~ of precision parts
of electric vacuum instruments." Mos, 1956. 16 pp (State Committee of
the Council of Ministers USSR on Radio-Electronics, State ^{*Union*} ~~Acad Sci Res~~
Inst), 150 copies (HL, 49-58, 124)

34051

S/123/62/000/003/005/018
A004/A101

1.1110

AUTHOR: Stavitskiy, B. I.

TITLE: Electrospark manufacture of precision parts of electrovacuum devices

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 3, 1962, 34, abstract
3B173 ("Tr. Tsentr. n.-i. labor. elektr. obrabotki materialov,
AN SSSR", 1960, no. 2, 67-113)

TEXT: A characteristic feature of the technology of electrospark manufacture of electrovacuum parts is the use of low pulse energies (in the range of 10^{-4} joule and less) for obtaining the required accuracy (up to 0.002 - 0.004 mm) and a high surface finish (7th - 10th class). The dependence of the technological machining characteristics on the pulse parameters was established by investigating the geometry of the erosion holes using an interferometer microscope. Oscillographic investigations showed that the mean frequency of pulse repetition is in the range of 10 - 300 kc, if an RC circuit for pulse energies of 10^{-4} joule is used. Special installations which can be divided into two groups have been developed for precision machining, coordinate installations for the slitting of grooves and slots and manufacture of components of different

Card 1/3

34051

S/123/62/000/003/005/018

A004/A101

Electrospark manufacture ...

shape using very thin wire electrodes, and installations for cutting various holes by copying the electrode shape. The number of installations of the first group includes models 3KY-1 (EKU-1) and 3KY-1M (EKU-1M) for machining using rectangular and polar coordinates, and models 3KY-1A (EKU-1A) and 3KY-1B (EKU-1B) for machining by rectangular coordinates. These installations have been developed on the basis of the large BMM (BMI) instrument microscope. The feed of the table on which the blank is clamped is effected automatically by two coordinates using d-c shunt motors. The second group includes the 3NC-2 (EPS-2) installation for the manufacture of nettings and the 3NC-3 (EPS-3) installation for the cutting of holes. In these installations oscillating motions are imparted to the electrode with the aid of an electromagnetic vibrator. The magnetron anode units and the delay systems are executed as mobile electrodes of tungsten wire 0.03 - 0.04 mm in diameter, operating capacitance - 0.01 - 0.20 microfarad, short-circuit current - 0.2 - 0.6 amp, electrode voltage approximately 100 v. For manufacturing nettings for electrovacuum devices, whose web width amounts to 0.02 - 0.03 mm, while the required allowance is ± 0.002 mm, a method has been developed which is based on the use of a special machining electrode. The latter is manufactured by the electrospark method from a rod on whose end grooves have been cut in tow reciprocal perpendicular directions. The width of the grooves

Card 2/3

L 07458-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(t)/ETI/EWP(1) IJP(c) JD

ACC NR: AP6034762 (A) SOURCE CODE: UR/0407/66/000/001/0011/0027

AUTHOR: Stavitskiy, B. I. (Moscow) 27

ORG: none 14 B

TITLE: Some types of equipment for precision electrospark machining of metals 15

SOURCE: Elektronnaya obrabotka materialov, no. 1, 1966, 11-27

TOPIC TAGS: electrospark machine, ~~tools~~ electrospark machining, machine tool

ABSTRACT: Three types of precision electrospark machine tools¹⁰ are described: 1) for machining shaped surfaces, various holes and cavities by duplicating the electrode shape; 2) for cutting narrow slots and machining shaped parts with a wire electrode; and 3) combined machine tools. The A 207.08¹⁰ model belongs to the first category, intended for machining of large forging and blanking dies, chills, draw-plates and other intricate parts made of hardened steels and hard alloys. It can accomodate parts with a maximum size of 350 x 250 x 150 mm. To this category also belong the A 207.07, A 207.12, and A 207.16 models. The second category is represented by model A 207.13 used for machining with tungsten, molybdenum, or copper wire electrodes 0.005—0.040, 0.020—0.040, or 0.080—0.200 mm in diameter, respectively. Electrodes made of bi-metallic wire or dielectric material with conducting cladding also can be used. This model machines with an accuracy of ± 0.005 mm; the maximum part dimensions are 150 x 50 x 50 mm. Four parts can be machined simultaneously. The EX 1333, A 207.20,

Card 1/2

L 07453-67

ACC NR: AP6034762

A 207.27, and improved A 207.13/20 models belong to the same group. The A 207.23 model is a combined type intended for precision machining with shaped or wire electrodes. The machining accuracy is 0.002 mm, and the hole misalignment does not exceed 0.003 mm; the maximum part dimensions are 200 x 100 mm and the minimum slot size is 5—10 μ . A 207.07, A 207.08, A 207.13, and A 207.16 models were awarded the first degree diploma at the Exhibition of the Achievements of the National Economy SSSR. A 207.13/20 and A 207.23 models were awarded gold medals at the 1965 Leipzig Spring Fair. Orig. art. has: 26 figures and 1 table.

SUB CODE: 13/ SUBM DATE: none / ATD PRESS: 5104

Card 2/2 *Am*

GURARI, F.G.; ZAPIVALOV, N.P.; KONTOROVICH, A.E.; NESTEROV, I.I.;
STAVITSKIY, B.P.

Regularities of change in the composition of Mesozoic crudes
of the West Siberian Plain. Geol. nefti i gaza 8 no.12:23-27
D '62. (MIRA 18:2)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki
i mineral'nogo syr'ya.

NIZOVKIN, A.M.; STEPANYUK, V.D.; STAVITSKIY, D.B.

So that people would be healthy. Veterinariia 42 no.10:10-14 0
'65. (MIRA 18:10)

1. Nachal'nik veterinarno-sanitarnoy stantsii, Novosibirsk (for Nizovkin). 2. Direktor veterinarnoy laboratorii, gorod Smela, Cherkasskoy oblasti (for Stepanyuk). 3. Zavednyushchiy myaso-molochnoy i pishchevoy kontrol'noy stantsiyey, gorod Smela Cherkasskoy oblasti (for Stavitskiy).

FOMICHENKO, I., prof., general-major v otstavke; STAVITSKIY, I., polkovnik,
kand.istoricheskikh nauk

"The CPSU is the leader and educator of the Red Army, 1918-1920"
by IU.P.Petrov. Reviewed by I.Fomichenko, I.Stavitskii. Komm.
Vooruzh.sil 2 no.7:88-93 Ap '62. (MIRA 15:3)
(Russia--Revolution, 1917-1921) (Petrov, IU.P.)

STAVITSKIY, I., dotsent, polkovnik; KARAMYSHEV, V., dotsent, polkovnik

Party construction in the Soviet Armed Forces. Komm. Vooruzh.
Sil 4 no.12:89-94 Je '64. (MIRA 17:9)

STAVITSKIY, I.K.

DECEASED
C' 1961

1962/4

SEE ILE

ORGANIC CHEMISTRY

28(1)

SOV/118-59-9-4/20

AUTHOR: Stavitskiy I.M., Engineer

TITLE: Mechanization and Automation at the Plant imeni
Likhachev

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, 1959
Nr 9, pp 16-19 (USSR)

ABSTRACT: At the Moscow Automobile Plant imeni Likhachev there will be introduced 143 new automatic work-and-assembly lines in 1965. In this article, the author deals with some automatic equipment already in operation at the plant. Fig. 1 shows an installation for manufacturing cast iron valve bushings for automobile motors. Productivity of this installation is 720 pieces an hour; it is operated by 1 workman. Formerly, this operation required 6 workmen, while the output was 250-280 pieces an hour. Machining of inlet and exhaust valve stems was formerly performed on 2 lathes operated by 3 workmen; now it is done by means of a 20-ton power press by 1 person (Fig. 2). Automatic devices for receiving large-

Card 1/2

STAVITSKIY, I.M.

Automation of centerless grinding. Avt.prom. no.3:42-43 Mr '60.
(MIRA 13:6)

1. Moskovskiy avtozavod imeni Likhacheva.
(Grinding and polishing)
(Automatic control)

S/113/60/000/009/004/005
A002/A001

AUTHORS: Rokitskiy, Ye. Ye., Stavitskiy, I. M.
TITLE: A Highly Efficient Semi-Automatic Device for the Simultaneous Chamfering of Several Holes ✓

PERIODICAL: Avtomobil'naya promyshlennost', 1960, No. 9, pp. 38-39

TEXT: At the Moscow Automobile Plant imeni Likhachev, a semiautomatic universal device with automatic setting is used for the simultaneous chamfering of all holes in a flange located perpendicular to a given plane (e. g. holes in the drive shaft flanges of ZIL automobiles). The device consists of standard components (Fig. 1) and is powered by an electric motor with a reducer. It can be easily converted for machining any other similar part. The device can be used for chamfering holes of up to 30 mm diameter, provided that the minimum distance between them is 45 mm. In case holes of more than 30 mm diameter must be chamfered, the mandrels holding the cutting tools must be exchanged against larger ones. All chamfers are cut of the same depth, regardless whether or not the surface in which the chamfers are located has been machined. Previously, the flange holes were chamfered individually on a drilling machine, resulting

Card 1/2

STAVITSKIY, I.M._____:

Draw-in attachment for machining rod shaped materials. Avt.prom.
no.3:33 Mr '61. (MIRA 14:3)

1. Moskovskiy avtozavod imeni Likhacheva.
(Lathes)

STAVITSKIY, I.M., inzh.

Ejector of finished parts. Trakt. 1 sel'khoz mash. 31. no.6:46
Je '61. (MIRA 14:6)

(Power presses—Attachments)

STAVITSKIY, I.M.

Mandrel for machining and polishing bushings. Trakt. 1
sel'khoz mash. 31 no.7:42-43 J1 '61. (MIRA 14:6)
(Lathes--Attachments)

STAVITSKIY, I.M.

Use of sectional hobs. Trakt. i sel'khoz mash. 31 no.12:39-40
D '61. (MIRA 15:1)
(Metal cutting tools)

AGAFONOV, A.A.; STAVITSKIY, I.M.

Modernization of the vertical drilling machine. Mashinostroenie
no.1:97-100 Ja-F '62. (MIRA 15:2)
(Drilling and boring machinery---Technological innovations)

AGAFONOV, A.A.; STAVITSKIY, I.M.

Pneumatic draw-in chuck for lathes with automatic withdrawing
of machined parts. Mashinostroenie no.1:99-100 Ja-F '62.

(MIRA 15:2)

(Chucks)

STAVITSKIY, I.M.

Automatic feed of strips to press dies. Mashinostroenie no.1:
103-104 Ja-F 162. (MIRA 15:2)
(Feed mechanisms)

MANOKHIN, P.A.; STAVITSKIY, I.M.

Round-key sectional broach. Mashinostroenie no.2:110 Mr-Ap '62.
(MIRA 15:4)
(Broaching machines)

STAVITSKIY, I.M.

Self-opening chuck for screwing stud bolts with a screwdriver.
Mashinostroenie no.2:113 Mr-Ap '62. (MIRA 15:4)
(Chucks)

STAVITSKIY, I.M.

Manufacturing electrodes by extrusion. Mashinostroenie no.4:
115 J1-Ag '62. (MIRA 15:9)

(Electrodes)

USSR/ Miscellaneous - Radio Stations

Card 1/1/ Pub. 133 - 16/23

Authors : Kholin, A. T., Manager of the Radio-Center Division of Communications;
Stavitsky, N. I., Chief Engineer of Radio Communications and Broadcast-
Title : ing; and Traer, M. Kh., Chief Engineer of the Office for Radio Communica-
tions
Means for increasing the operational stability of radio-transmitting
Periodical : installations
Vest. svyazi 11, 25 -26, Nov 1954
Abstract : Several letters are presented in response to an article by E. P.
Khmelnitsky entitled, "Means for Increasing the Operational Stability
of Radio-transmitting Installations," that appeared in the September
issue of "Vest. svyazi," 1954. It was pointed out that the lack of
operational stability and frequent interruptions in the operation of
radio-transmitting was due to the following reasons; (1) untrained
personnel; (2) poor quality of component parts (mainly vacuum tubes)
used in the assembly of transmitters and (3) lack of unified Government
standards for testing radio equipment and parts. Means for eliminating
the above defects are suggested.

Institution:
Submitted:

STAVITSKIY, R.V.

Reduction of irradiation in roentgenodiagnosis. Med.rad. 4 no.12:
63-65 D '59. (MIRA 13:5)

1. Iz kafedry radiatsionnoy gigiyeny Tsentral'nogo instituta
usovershenstvovaniya vrachey Ministerstva zdavookhraneniya
SSSR.

(RADIOGRAPHY)

STAVITSKIY, R.V.; Terman, A.V.

Classification of radiometric apparatus. Med.rad. 5 no.3:80-81
'60. (MIRA 13:12)
(RADIATION—MEASUREMENT)

STAVITSKIY, R.V.

Roentgenometer for the measurement of therapeutic doses. Med. rad.
5 no.4:65-67 Ap '60. (MIRA 13:12)
(X RAYS--MEASUREMENT) (RADIOMETRY)

STAVITSKIY, R.V.

Methods for inspecting protection in X-ray rooms of medical
institutions. Med. rad. 5 no.8:52-53 '60. (MIRA 13:12)
(RADIATION PROTECTION)

STAVITSKIY, R.V.; TERMAN, A.V.

Use of dosimetric apparatus in sanitary practice. Gig. i san. 26
no.8:53-57 Ag '61. (MIRA 15:4)

1. Iz kafedry radiatsionnoy gigiyeny Tsentral'nogo instituta
usovershenstvovaniya vrachey.
(RADIOACTIVITY--MEASUREMENT)

GAMALEYA, A.N.; DONSKOY, M.D.; STAVITSKIY, R.V.; SHVEDOVA, T.Zh.

Methods of mobile large focus skin distance gammatherapy in
the radiotherapy of intrathoracic tumors. Med. rad. 8 no.4:8-17
Ap'63 (MIRA 17:2)

1. Iz otdeleniya luchevoy terapii Glavnogo voyennogo gosptalya
imeni akademika N.N. Burdenko (glavnyy radiolog gosptalya
A.N. Gamaleya) i kafedry radiatsionnoy gigiyeny (zav. - prof.
F.G. Krotkov) Tsentral'nogo instituta usovershenstvovaniya
vrachey.

G.GAMALEYA, A.N.; DONSKOY, M.D.; STAVITSKIY, R.V.; SHEVDOVA, T.ZH.

Distribution of the dosage fields in pendulum gamma therapy in tumors of the rectum and urinary bladder. Med. rad. 10 no.7:16-19 J1 '65. (MIRA 18:9)

1. Otdeleniye luchevoy terapii Glavnogo voyennogo gosspital'ya imeni akademika N.N.Burdenko (glavnyy radiolog gosspital'ya A.N. Gamaleya) i kafedra radiatsionnoy gigiyeny TSentral'nogo instituta usovershenstvovaniya vrachev (zav. - prof. F.G.Kretkov), Moskva.

ACC NR: A16034105

(N)

SOURCE CODE: UR/0089/66/021/004/0306/0308

AUTHOR: Stavitskiy, R. V.

ORG: none

TITLE: Energy characteristics of x radiation at maximum voltages 40 - 120 kv

SOURCE: Atomnaya energiya, v. 21, no. 4, 1966, 306-308

TOPIC TAGS: x ray absorption, x ray filter, x ray effect, water, concrete, radiation hazard, radiation shielding

ABSTRACT: To provide data on the required shielding against the effect of direct and scattered x rays from a tube operating at 40 - 120 kv maximum, the authors used a procedure for indirectly determining the energy characteristics with the aid of single and two-fold measurements of the half-value layers Δ with subsequent determination of the effective energy, using the tables given by A. M. Krongauz (in "Chastnyye voprosy rentgenologii i radiologii" [Special Problems in Roentgenology and Radiology], Medgiz, 1961, p. 119). The half-value layers were measured for water (tissue-like material), brick, and concrete. The half-value layers as functions of the tube voltage were first measured in free air, after which the effect of the different shielding materials was measured. The dependence of the results on the beam width was also investigated for the case of water. The results showed that the half-value layer and the effective energy of the scattered radiation increase slowly with increasing tube voltage, but the used walls (12 and 12.5 cm thick for concrete and brick, respectively) were insuf-

Card 1/2

UDC: 621.386.7: 621.386.86

ACC NR: AP6034105

sufficient shields. Nevertheless the results show that if the x radiation is sufficiently homogeneous, the effective energy passing through the shield is approximately equivalent to $3/4$ of the absolute voltage of the tube, making it possible to choose correctly the operating conditions for the dosimetric instrument used to monitor the shielding efficiency. Orig. art. has: 4 figures.

SUB CODE: 1B, 20/

SUBM DATE: 12Apr66/

ORIG REF: 003

Card 2/2

BATRAKOV, O.T., inzh.; STAVITSKIY, V.D., inzh.

Selecting the parameter of pneumatic tires for rollers. Stroi.
i dor.mash. 9 no.10:6-7 0 '64. (MIRA 18:1)

BATRAKOV, O.T., dotsent; STAVITSKIY, V.D., inch.

Shortcomings of the standard method of soil stabilization.
Avt. dor. 28 no.5:26-27 My '65. (MIRA 18:11)

STAVITSKIY, V.I., inzh.; GLADYSHEV, A.I., inzh.

Method of design and construction of a regulating element for
temperature regulators in petroleum preheaters. Sudostroenie
29 no.6:22-25 Je '63. (MIRA 16:7)
(Temperature regulators--Design and construction)
(Steam engineering)

STAVITSKIY, V. T. Cand Tech Sci -- (diss) "Raising the efficiency and power of self-igniting ~~air~~ engines by means of ~~salvaging~~ the exhaust heat." Baku, 1959. 19 pp with diagrams (Min of Higher and Secondary Specialized Education USSR. Azerbaydzhan Order of Labor Red Banner Inst of Petroleum and Chemistry im M. Azizbekov), 150 copies (KL, 47-59, 115)

STAVITSKIY, V.T., inzh.

Results of comparative tests of the 3-D-6s engine with
differing temperatures of cooling water. Sudostroenie 26
no.2:33-34 (208) Feb '60. (MIRA 14:11)
(Marine engines--Testing)

BASNIN, R.V., inzhener-kapitan 1-go ranga; STAVITSKIY, V.T., inzhener-kapitan 1-go ranga

Know well the theory of a ship and its seaworthiness. Mor. sbor.
47 no.5:60-62 My '64. (MIRA 18:6)